Part 4: Instructions for programming DA-Microcontrol cl. 743-121

Program version: 743LC-A03

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1. General

The **DÜRKOPP ADLER 743-121** controls, with the integrated **MULTI-TEST** testing and monitoring system, assumes control and supervision of the sewing process. Operating errors and malfunctions are displayed.

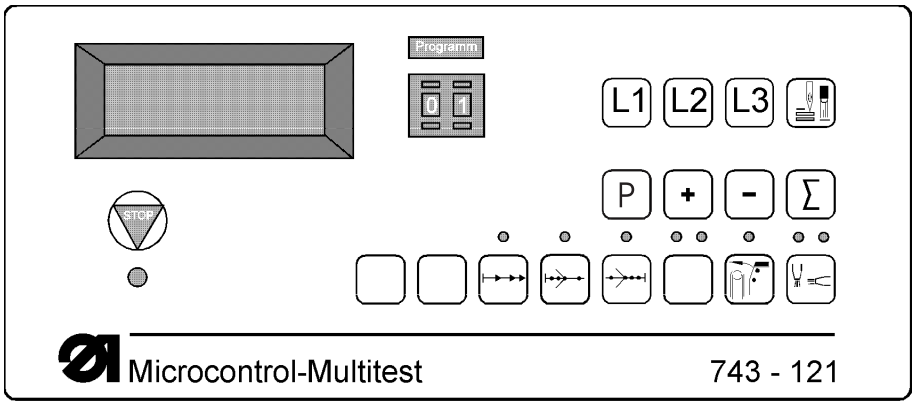
Special programs simplify mechanical adjustments and allow a quick checking of the input and out put elements.

The data is shown in a 2 • 16-digit display.

All functions can be altered by pressing the appropriate button. The machine must be in its initial setting. The set values (seam length, function on/off, etc.) are put into the memory (battery- powered buffer) and activated when the machine is next switched on.

2. Description of the Controls

2.1 Operating Elements on the Front Panel



Button	Description
Programm 0 1	Selecting the sewing and testing programs
STOP	Stopping the current program Activating the selected program

Button	Description	Button	Description
L1	Seam length 1		- Reserve -
L2	Seam length 2		- Reserve -
L3	Seam length 3		Soft start
	Seam length via light barrier		Stitch condensing at the seam beginning
P	Normal stitch / Stitch condensing stitch		Stitch condensing at the seam end
+	Increase value		- Reserve -
−	Decrease value		Smoother
Σ	Set counter Start test program		Blower from above/below

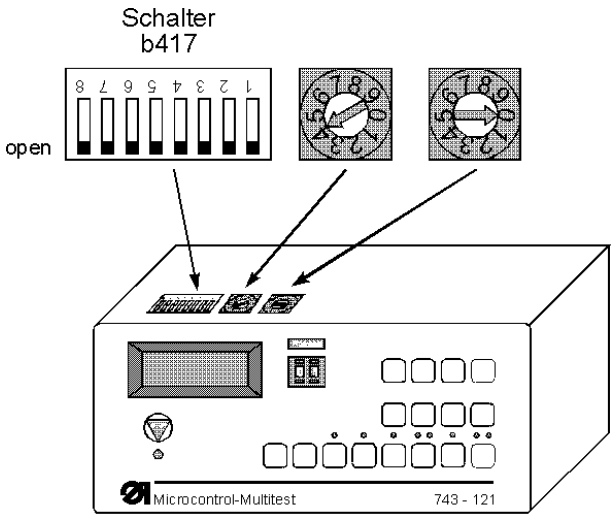
2.2 Operating Elements in the Controls

The switch b417 in the control must be set suitably for the individual work methods.

The dials b401 und b402 are without function from version "A03".

Caution Current !

The switches may only be changed when the main switch is turned off.



Switch b417	open	closed
1	Smoother	- Reserve -
2	Thread monitor activ	Thread monitor **not** activ
3	- Reserve -	- Reserve -
4	Nmax. = 4.800 RPM	Nmax. = 4.300 RPM
5	Chain stitch	- Reserve -
6	- Reserve -	- Reserve -
7	- Reserve -	- Reserve -
8	- Reserve -	- Reserve -
Initial position = **all** switches in open status		

3. Setting the Sewing and Testing Programs

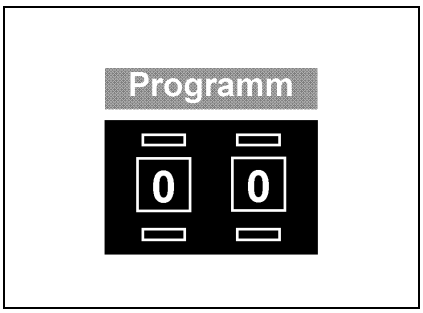
The sewing and testing programs are selected via the **" Programm "** preselector switch.

Switch Program	Function
00	Display of the program version
01	Sewing program e.g. dart
02	Sewing program e.g. waist pleat
40	Setting the blower times
57	Step motor controller test
59	Timer and memory test
60	Current passage check
61	Test of the front panel elements
62	Test of the input elements
63	Selecting the input elements
64	Selecting the output elements
66	Sewing drive: Set value X, Pos. 2
67	Sewing drive: Set value X, Pos. 1
68	Sewing drive: Set value X, Pos. 1 Pos. 2
69	Sewing drive: Set value X, thread trimming,Pos.2

– Set **" Programm "** switch to the desired program.
– **" Turn on main switch "** or press the **" STOP "** button.
The selected program is activated.

If the **" P? "** message appears, then an illegal program has been set. Correct the setting and press the **" STOP "** button.

3.1 Display of the Program Version



The program version and a check sum are shown in the display.

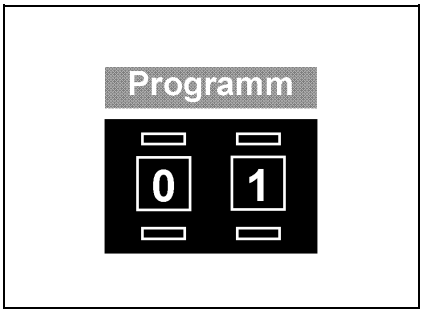
e.g.: **743A01** 743 = class designation
A01 = code letter and serial number

All program versions with the same class designation and the same code letter but a higher serial number replace all lower numbered versions (e.g.: 743A03 replaces 743A01 and 743A02).

The check sum is only meant for use by the factory service department. This value shows whether the complete machine program is installed properly in the program memory.

– Set **" Programm "** switch to **" 00 "**.
– Press **" STOP "** button.
The program is activated.

3.2 Sewing Program

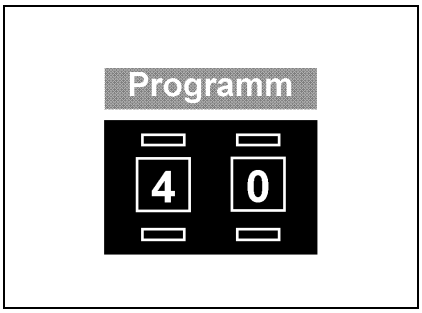


The 01 sewing program or the 02 sewing program can be called up.

The operating procedure is described in the operating instructions.

– Set **" Programm "** switch to **" 01 "** or **" 02 "**.
– Press **" STOP "** button.
The sewing program is activated.

3.3 Set blower times

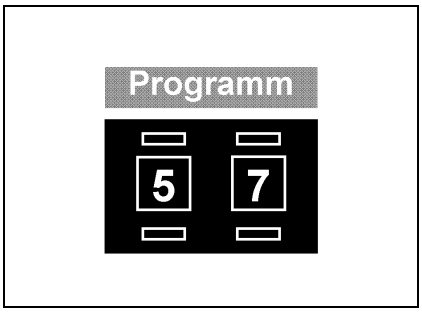


The blower period for blowing out the piece to be sewn are adjustable.

– Set **" Programm "** switch to **" 40 "**.
– Press **" STOP "** button.
  The program is activated. The blower time is displayed.
– The desired value is set with the **" + "** and **" — "** buttons.

  Adjustment range: 01...20 = 0,1...2,0 seconds

3.4 Step Motor Controller Test



This program checks the step motor controller and the step motor output levels.

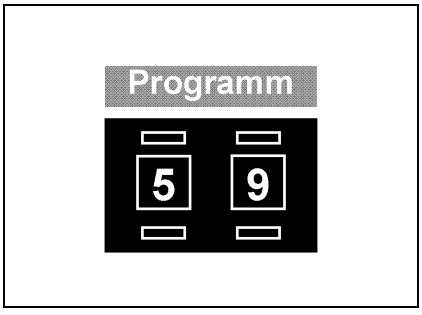
– Set **" Programm "** switch to **" 57 "**.
– Press **" STOP "** button.
  The test program is activated. The results are displayed.

Display	Explanation
AMP ERR	Fault in the power output Transmission cable not plugged in
LINK OK LINK ERR	Transmission to the controller OK Fault in the transmission
EPROM OK EPROM ERR	EPROM OK EPROM defective
XCOU OK XCOU ERR	Counter component for pulse counting OK Counter component for pulse counting defective
SCOU OK SCOU ERR	Counter component for pulse generation OK Counter component for pulse generation defective

3.5 Timer and Memory Test

CAUTION !

This program completely erases the memory.
Sewing lengths, blower times and all other values must be set anew.

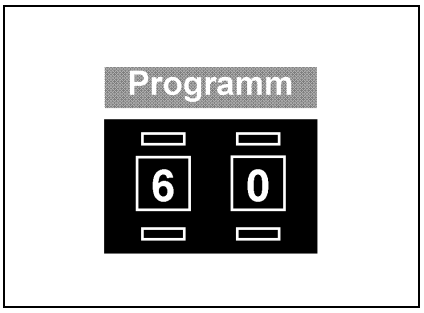


The RAM and the timer switchings are checked automatically by the program.

– Set **" Programm "** switch to **" 59 "**.
– Press **" STOP "** button.
  The program is activated.

Display	Explanation
OK	RAM and timer OK
ERROR 0 ERROR 6 ERROR 7	RAM-error Timer 1 defective Timer 2 defective

3.6 Current Passage Check



1. This program checks to see if the 24 V power unit supplies current when the output drivers are switched off.

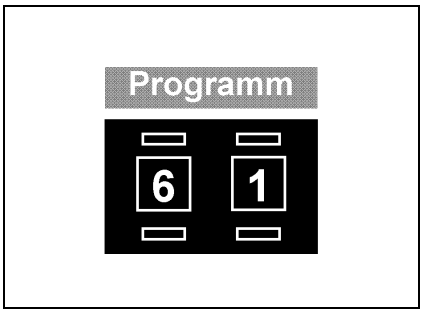
2. The program checks all output elements, the output drivers and the installation for current passage.

– Set **" Programm "** switch to **" 60 "**.

– Press **" STOP "** button.
The program is activated.

Display	Explanation
V?	Short circuit in the installation or an output driver is defective.
S17 (Example)	Interruption in the output element S17, in its installation oder driver. Continue the inspection at the next element by pressing the **"** Σ **"** button.

3.7 Test of the Front Panel Elements



The program checks the front panel elements.

– Set **" Programm "** switch to **" 61 "**.

– Press **" STOP "** button.
The program is activated.

1. Check buttons

– Press the button to be tested.
The display shows the allocated value.
e.g. P61 8 (allowable values: 1, 2, 4, 8)

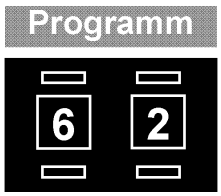
2. Check LEDs

– Set **" Programm "** switch to **" 61...68 "**.

– Press **"** Σ **"** button.
The selected diode will light up.

No.	LED
61	Stitch condensing at the beginning of the seam
62	- Reserve -
63	Soft start
64	Blower from above
65	Blower from underneath
66	Smoother
67	- Reserve -
68	Stitch condensing at the seam end

3.8 Test of the Input Elements



The program checks the status of the input elements.

– Set **" Programm "** switch to **" 62 "**.
– Press **" STOP "** button.
  The program is activated.
– Operate input element.

If any input element is operated, then the display will show the circuit diagram designation and its status.

The display changes when any other input element is operated.

e.g.: b03+ The switch for "Table forward" is switched on.

\+ means:

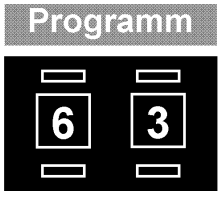
contact switch	= open contact
proximity switch	= metal in front of the switch
reflecting light barrier	= no reflection
transmitted light barrier	= beam not broken

Input Element	Designation
b03	Table forward
b04	Sewing released
b05	Transport carriage left
b07	Transport carriage right
b15	Form assembly slew
b16	Form assembly control
b45	Light barrier seam end

3.9 Selecting the Input Elements

CAUTION !

All input elements are carefully set at the factory.
Adjustment and correction can only be undertaken by trained service personnel.



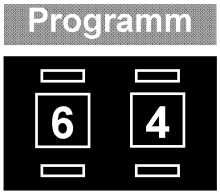
The program is used to set the input elements.

– Set **" Programm "** switch to **" 63 "**.
– Press **" STOP "** button.
  The program is activated.
– Set **" Programm "** switch to the desired input element (see section 3.8).
– Adjust the input element (switch flag, control cam, etc.) until the desired status is displayed.

3.10 Selecting the Output Elements

Caution Danger of Injury !

Do not put your hands into the machine while it is operating.
Choose your position so that no injury is possible
(e.g. Function check s17: Table back).

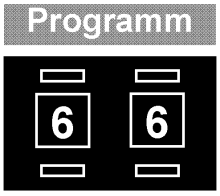


The program checks the function of an output element.

- Set **" Programm "** switch to **" 64 "** .
- Press **" STOP "** button.
  The program is activated.
- Set **" Programm "** switch to the output element.
- Press **" Σ "** button.
  The selected output element is switched on.
- Press **" Σ "** button.
  The selected output element is switched off.

Output Element	Designation
s17	Table back
s18	Table free
s19	Thread tension
s 9	Blower from right
s10	Blower from above
s25	Smoother
s28	Trimmer
s29	Slew form assembly
s30	Trimmer transport and Pressure increase for thread clamp
s31	Release thread chain
s32	Lower form assembly

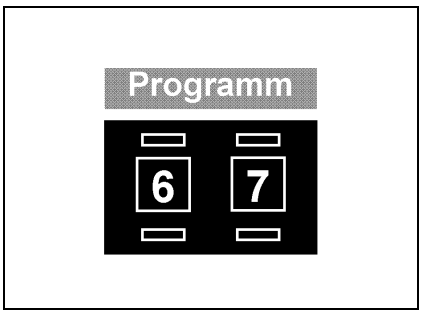
3.11 Positioning the Machine Head in the 2nd Needle Position



The machine head is positioned in the 2nd position (needle up) with this program.

- Set **" Programm "** switch to **" 66 "**.
- Press **" STOP "** button.
  The program is activated. Display **" SW? "**
- With the **" Programm "** switch set the drive revolutions to **" 01 "**... **" 13 "** .
  01 = Minimum revolutions
  13 = Maximum revolutions
- Press **" Σ "** button and hold down.
  The drive runs at the selected revolutions. The actual revolutions will be displayed after a few seconds.
  After the **" Σ "** button is released the needle is positioned in the 2nd (needle up) position.

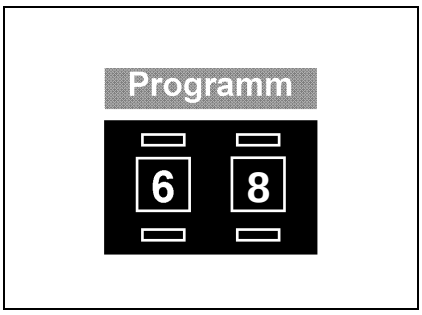
3.12 Positioning the Machine Head in the 1st Needle Position



The machine head is poisitioned in the 1st position (needle down) with this program.

– Program procedure and description as 3.11.
  Positioning is in the 1st position.

3.13 Positioning the Machine Head without Thread Trimming

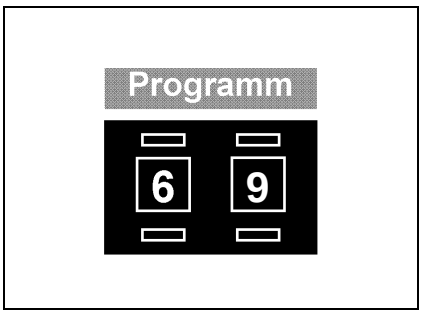


The operation is as described under program P66, but the positioning of the machine head occurs in the 1st needle position (needle down).

– Set the "**program**" switch to "**68**".
– Press the "**STOP**" key.
  The program is activated.

After a short break the needle positions in the 2nd needle position (needle up).

3.14 Positioning the Machine Head with Thread Trimming



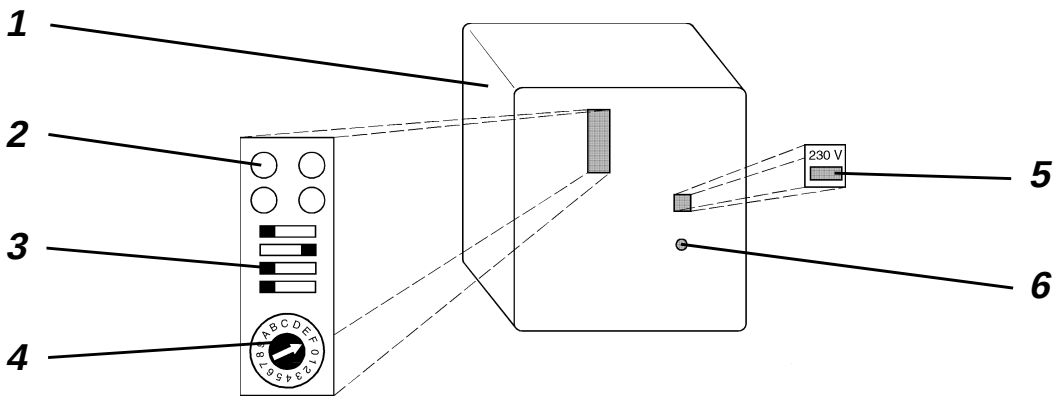
The operation is as described under program P66, but the positioning of the machine head occurs in the 2nd needle position (needle up).

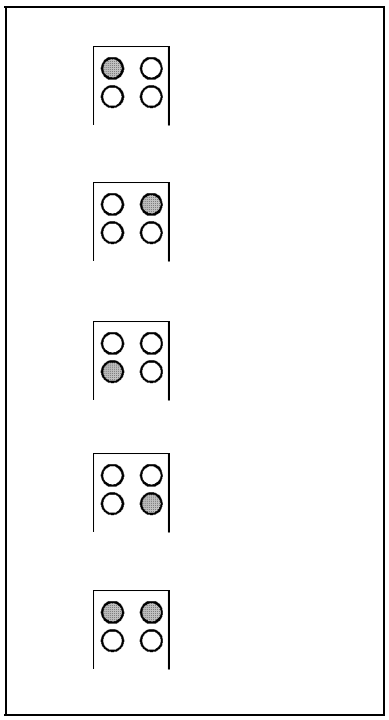
– Set the "**program**" switch to "**69**".
– Press the "**STOP**" key.
  The program is activated.

During the last half machine head revolution thread trimming occurs.

4. Operation Displays and Error Messages

Display	Explanation	Comments
P?	Illegal program	Set **" Programm "** switch anew
743A01	Display of the program version	-
---REF--->	Run to reference point	-
REF--->	Run to reference point	-
---x---	Thread breakage	Reinsert thread
POS-ERR	Motor not turning	Check motor protection switch
--( )--	No signal from the position transmitter	Check position transmitter
SW?	invalid revolution level set	Set **" Programm "** switch anew
E2	Fuse E2 on the control transformer defective	Replace fuse
STOP	Stop button defective	Replace stop button
	Glide plate not locked in	Lock-in glide plate
b417	invalid switch position from b417	Set b417 switch anew
b16	Form assembly not present	Insert form assembly
b4	Sewing released	-
SMC-TEST	Step motor controller is being tested	-
AMP ERR	Fault in the power output	Call factory service dept.
	Transmission cable not plugged in	Plug in transmission cable
LINK OK	Transmission to controller OK	-
LINK ERR	Error in data transfer	Call factory service dept.
EPROM OK	EPROM OK	-
EPROM ERR	EPROM defective	Install new EPROM
XCOU OK	Counter component for pulse counting OK	-
XCOU ERR	Counter comp. for pulse counting defective	Call factory service dept.
SCOU OK	Counter component for pulse generation OK	-
SCOU ERR	Counter comp. for pulse generation defective	Call factory service dept.
ERROR 0	RAM-error	Call factory service dept.
ERROR 1	Fault in the input elements	Check input elements
ERROR 2	Fault in the front panel elements	Check front panel elements
ERROR 3	Program switch defective	Replace program switch
ERROR 4	Error in data transfer to sewing drive controller	Call factory service dept.
ERROR 5	Short voltage drops in the mains	Stabilize voltage supply
ERROR 6	Timer 1 defective	Call factory service dept.
ERROR 7	Timer 2 defective	Call factory service dept.
ERROR B5	Transport carriage left (end position)	Manually push into the initial position
ERROR B45	Light barrier (no sewing material present)	Insert sewing material
Error Bxx	Fault in input element Bxx	Bxx defective or mis-adjusted
PROG ERROR 1	Error in the values in the memory	Reset seam lengths, blower times, etc.
PROG ERROR 2	Error in putting the check sum into memory	Program not properly stored in memory


1
2
3
4
5
6
230 V



5. Step Motor Output

Caution Electric Current !

Turn the main switch off !
The switches may not be adjusted carrying currrent.

The switches must be in the positions shown !

1	= Step motor output	
2	= Status indicators	**see Chapter 5.1**
3	= Parameter switches	**see Illustration**
4	= Current selector	**F**
5	= Voltage convertor	**230 V**
6	= Operation light	**on / off**

5.1 Status Display

LED 1	**Undervoltage** Shortfall in the operating voltage of more than 30 %
LED 2	**Phase monitoring** Interruption in one or more motor wires
LED 3	**Short circuit** Short circuit between two or more motor phases or motor phase and ground
LED 4	**Overheating** Exceeding the allowable temperature of the unit
LED 1 and 2	**Reset** ENABLE input is not activated by the controls